Amendment to the Claims:

This listing of claims replaces all prior versions, and listings, of claims in the application:

1. (Currently amended) A method, comprising:

analyzing a plurality of images which includes a specified desired feature therein to select a plurality of selected features; [[and]]

automatically detecting features within said plurality of images;

automatically forming a model for further recognition of said specified feature, using said selected features; [[and]]

and ~~which are automatically~~ ~~detected by~~ vector quantizing said automatically-detected features, clustering among ~~said~~ the vector-quantized features to reduce the total number of detected features, wherein said clustering also includes moving said features to combine similar features which are spatially offset; and

using only those similar features to form a model.

2-4. (Canceled).

5. (Original) A method as in claim 1, wherein said automatically determining a model comprises probabilistically

estimating which of the features are most informative for the model.

6. (Original) A method as in claim 5, wherein said automatically determining comprises assessing a joint probability function based on part appearance and shape.

7. (Original) A method as in claim 5, further comprising assembling a matrix of feature candidate positions indicating possible relevant parts, and statistically assessing whether said relevant parts are likely to be useful.

8. (Original) A method as in claim 6, wherein said joint probability function is estimated using expectation maximization.

9. (Previously presented) A method as in claim 1, further comprising forming a model using a plurality of recognized parts.

10. (Canceled).

11. (Currently amended) A method, comprising:
automatically analyzing an image to find features therein;

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grouping said features with other similar features to form clustered features;

statistically analyzing said features using expectation maximization, to determine which of said features are statistically most relevant;

forming a model using the statistically most relevant features;

wherein said grouping features comprises vector quantizing said features and grouping similar quantized features; and

wherein said grouping features further comprises spatially moving said features to group features which are different but spatially separated; and

using only those similar quantized features to form a model.

12.   (Original) A method as in claim 11, wherein said automatically analyzing comprises using an interest operator on a plurality of images.

13-14.   (Canceled).

15.   (Original) A method as in claim 11 wherein said statistically analyzing comprises estimating which of the

features are actually most informative of the desired item to be recognized.

16. (Currently amended) A method, comprising:

automatically analyzing an image to find features therein;

grouping said features with other similar features to form clustered features;

statistically analyzing said features using expectation maximization, to determine which of said features are statistically most relevant; and

forming a model using the statistically most relevant features;

wherein said grouping features further comprises spatially moving said features to group features which are different but spatially separated; and

wherein said statistically analyzing comprises establishing a correspondence between homologous parts across the training set of images; and

ignoring other features that are not in said set of homologous parts.

17. (Currently amended) An article comprising:

a machine-readable medium which stores machine-executable instructions, the instructions causing a machine to:

automatically analyze a plurality of training images which includes a specified desired feature therein, to select a plurality of selected features;

establish correspondence between homologous parts among said plurality of desired features in the plurality of training images to form a set of homologous parts; and

automatically form a model for further recognition of said specified feature, using said ~~selected features~~ homologous parts; and

ignoring other features that are not in said set of homologous parts.

18.   (Previously presented) An article as in claim 17, further comprising instructions to vector quantize said features to reduce the total number of detected features.

19.   (Currently amended) An article as in claim 17, wherein said automatically determining a model further comprising instructions to probabilistically estimate[[ing]] which of the features are most informative for the model.

20.   (Previously presented) An article as in claim 17, further comprising instructions to assemble a matrix of feature candidate positions indicating possible relevant parts, and

statistically assess whether said relevant parts are likely to be useful.

21.   (Original) A method as in claim 6, wherein said joint probability function is estimated using expectation maximization.

22.   (Previously presented) An article as in claim 17, further comprising instructions to form a model using a plurality of recognized parts.

23.   (Currently amended) An apparatus, comprising:

a computer, forming:

a plurality of feature detectors, reviewing images to detect parts in the images, some of those parts will correspond to the foreground as an instance of a target object class, and other parts not being an instance of the target object class, as part of the background;

a hypothesis evaluation part, that evaluates candidate locations identified by said plurality of feature detectors, to determine the likelihood of a feature corresponding to an instance of said target object class;

wherein said evaluation part operates by:

defining the parts as part of a matrix; and

assigning variables representing likelihood whether ~~foreground or background to~~ the parts in the matrix are from a foreground part or a background part and a model forming part, forming a model based on only said foreground parts.

24.   (Canceled).

25.   (Currently amended) An apparatus as in claim 23, further comprising:

classifying the images into the classes of whether the object is present (c1) or whether the object is absent (c0) by choosing the class with [[the]] a maximum a posteriori probability.

26.   (Currently amended) A method comprising:

reviewing images to detect specified parts in the images;

assigning a variable that defines some of those parts corresponding to the foreground as an instance of a target object class, and other parts not being an instance of the target object class, as part of the background, said assigning including evaluating candidate locations identified by a plurality of feature detectors, to determine the likelihood of a feature corresponding to an instance of said target object class;

wherein said assigning comprises:

defining the parts as part of a matrix; and

assigning variables representing likelihood whether ~~foreground or background to~~ the parts in the matrix are from a foreground part or a background part, and a model forming part, forming a model based on only said foreground parts.

27.   (Canceled).

28.   (Currently amended) A method as in claim 26, wherein said assigning comprises:

classifying the images into the classes of whether the object is present or whether the object is absent by choosing the class with [[the]] a maximum a posteriori probability.